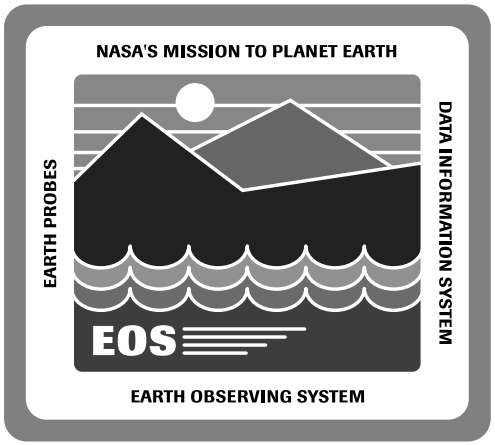

Science Data Processing Toolkit
Science Software I&T Tools

Larry Klein

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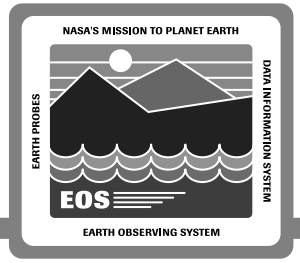
ECS Release A SDPS/CSMS Critical Design Review
16 August 1995

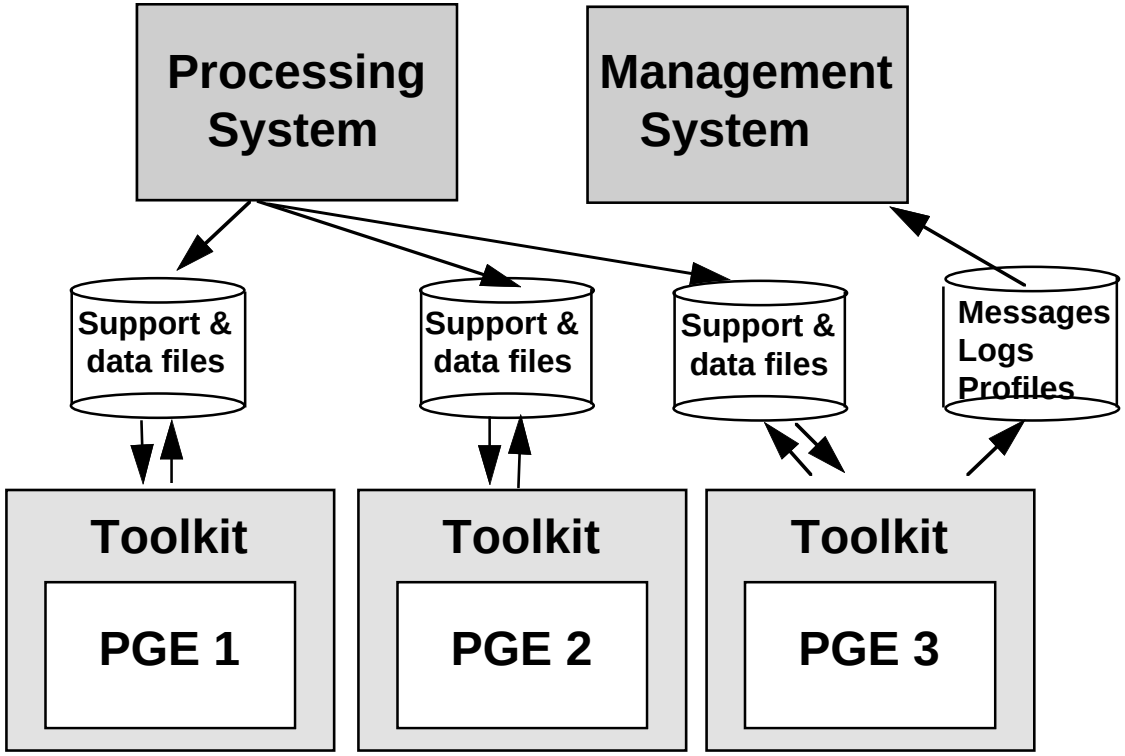
SDP Toolkit: Present to Release A



Summary

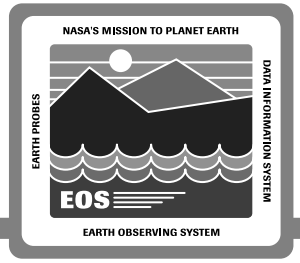
- Provides interface between science software and ECS
- Includes common tools for data processing, e.g. geolocation
- Developed in increments with community feedback
- TK5 delivered in August 1995
- DAAC version will be delivered with Interim Release 1 (Ir1)
- Maintenance delivery to SCFs being planned for first quarter 1996

Science Software and SDP Toolkit Context



* PGE is smallest schedulable entity in Processing System

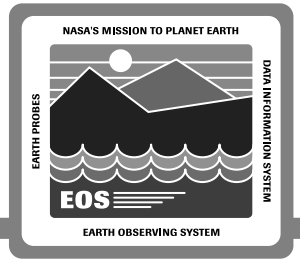
SDP Toolkit User Interface Content



Current Toolkit (Delivered August 95)

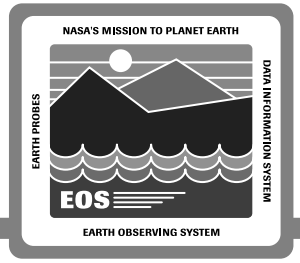
- **Process Control - Access to physical file handles, file attributes**
- **Status Message Handling - Communication to Management System**
- **Generic File I/O - Access to staged L0-L4 data, temp. & intermediate files**
- **Ancillary data access - Access to multi-dimensional data sets. NMC, DEM, DCW, etc. provided. Subsetting, parameter searches provided**
- **HDF-EOS - Swath structures supported (prototype), based on NCSA interface**
- **Metadata Access - Access to product metadata, read, write, update parameters**
- **Time/Date conversion library**
- **Geolocation - Transform from platform coordinates to lat./long.**
- **Geo-coordinate system conversion, e.g. lat./long. to SOM**
- **Constants and Unit conversions**
- **IMSL statistics and IDL graphics packages provided**

DAAC version of SDP Toolkit



- **Same user API as SCF version, no change to science software**
- **Will work on DAAC science processor (SGI Power Challenge in Ir1)**
- **Will be instrumented with management system event handler for purpose of system monitoring and trouble shooting. Event handler will be used to transmit PGE log files and messages (via Toolkit functions).**
- **DAAC version of Process Control Files will be used. SCF supplied files will be incorporated (by an SSI&T tool) in a DBMS and reconstituted prior to runtime i.e. Physical file paths now lead to DAAC location.**

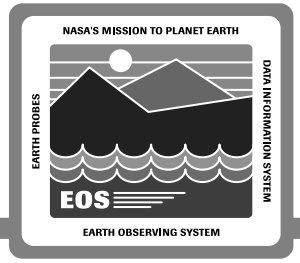
SDP Toolkit Sustaining Engineering



Maintenance delivery proposed first quarter 1996

- **Complete tools for external interfaces which were not defined at the time of Toolkit 5, e.g. EDOS L0 file format**
- **Update Toolkit for platform, compiler, operating system upgrades**
- **Upgrade access to ancillary data, e.g. new DEM**
- **Complete HDF-EOS interface with grid, point, swath structures**

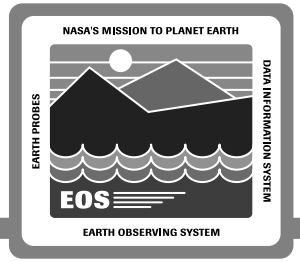
Science Software Integration and Test Tools



Summary

- Comprises tools which enable integration of science software into production system
- Integration will be done in production system environment, i.e. uses same components as operational system
- Consists of SDP toolkit with DAAC extensions, production system components, analysis tools and tool access GUIs
- Initial delivery scheduled for Ir1 in the first quarter of 1996
- Release A tools will build on Ir1 implementation and experience

Science Software I&T Capabilities



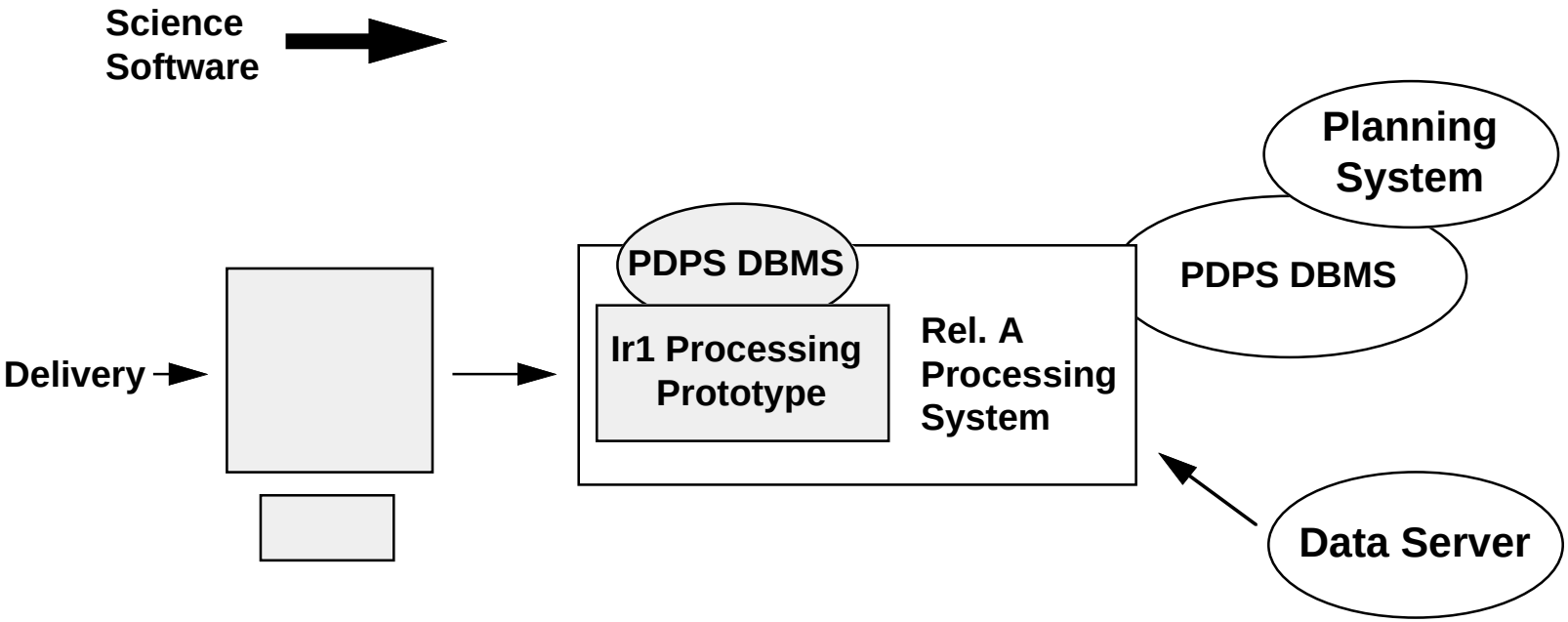
Ir1

- **Ingest software and test data from SCF and verify contents**
- **Place contents of delivery under configuration management**
- **Compile and build executables**
- **Populate production system database with process control information**
- **Test execution of single PGEs and strings of PGEs with same scheduling and queuing COTS as Release A. Ir1 implementation will be a production system prototype.**
- **Collect resource utilization and performance statistics**
- **Examine test run outputs and compare with SCF results**
- **Maintain log of SSI&T activities**
- **Provide configurable GUI to manage SSI&T activities and tools**
- **Allow for additional DAAC specific or updated tools to be added**

Release A

- **Test operation of end to end product production**

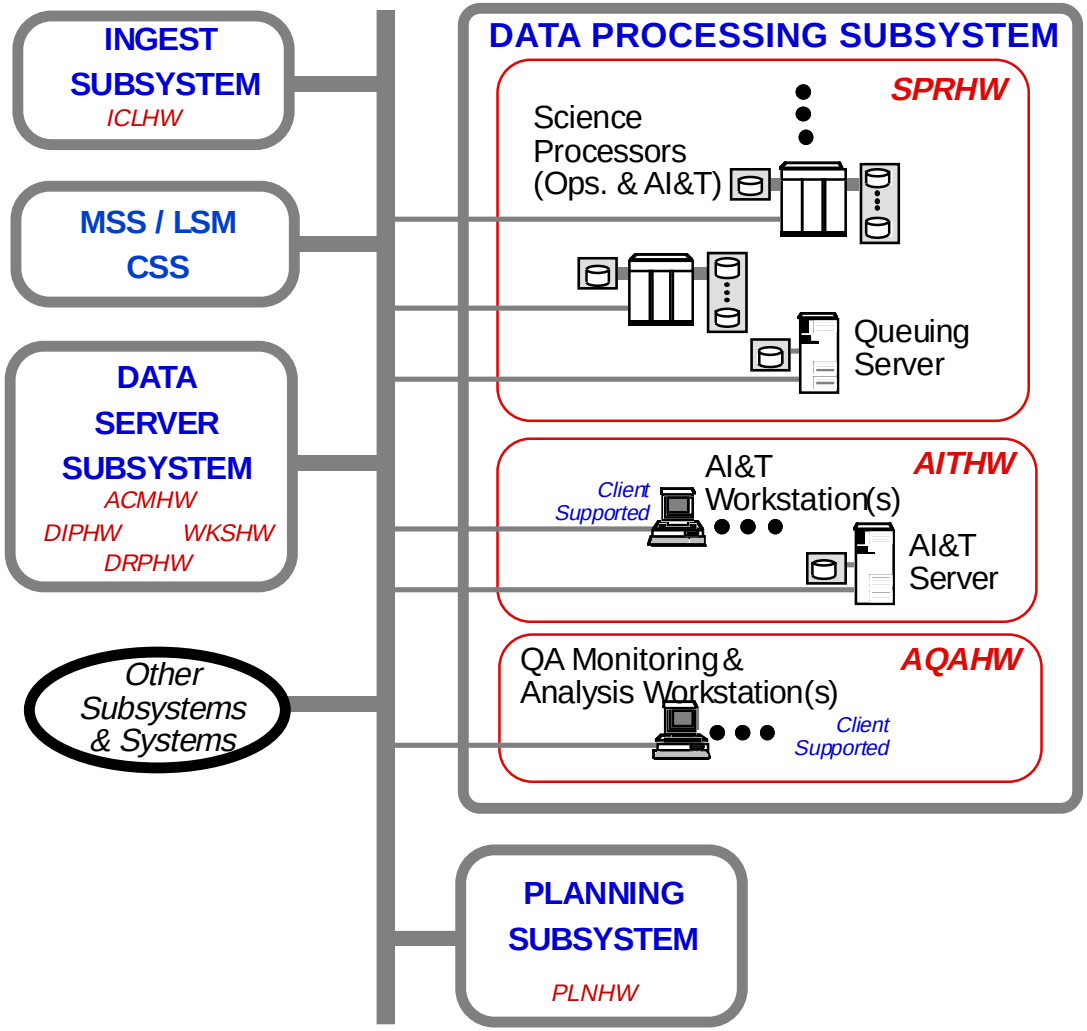
SSI&T Tools Context



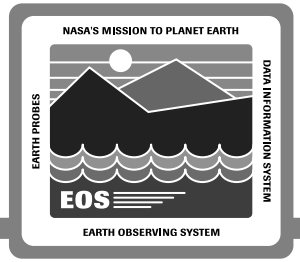
- Delivery, CM, code check
- Manual data processing request creation
- Subset of Rel. A data production DBMS built
- PGE and PGE strings testing

A
- Builds on Ir1 implementation
- Automated data processing requests
- Complete data prod. DBMS built
- End-to-end production testing

Data Processing HWCI



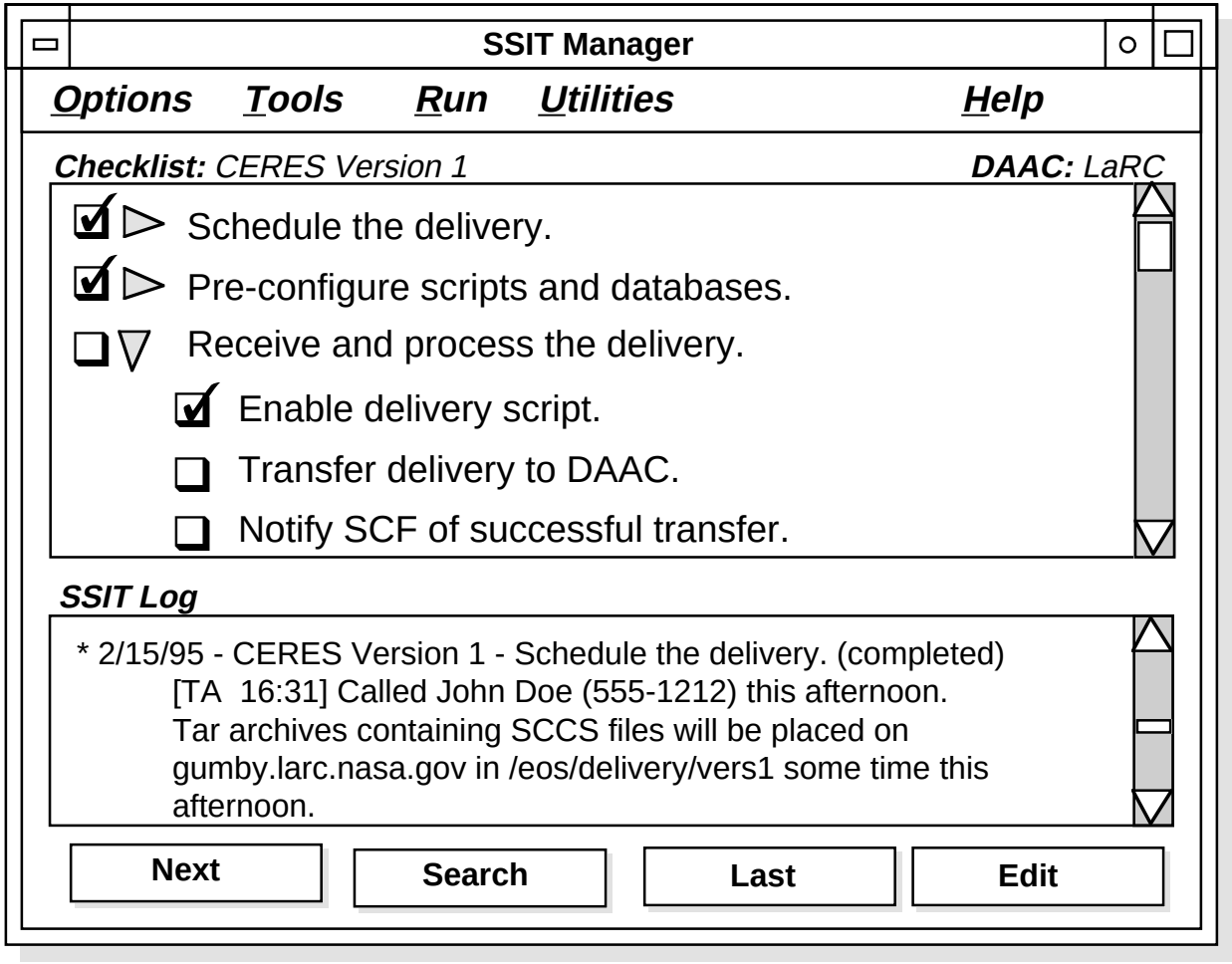
Science Software Integration & Test Support (AITHW)



Architecture Features:

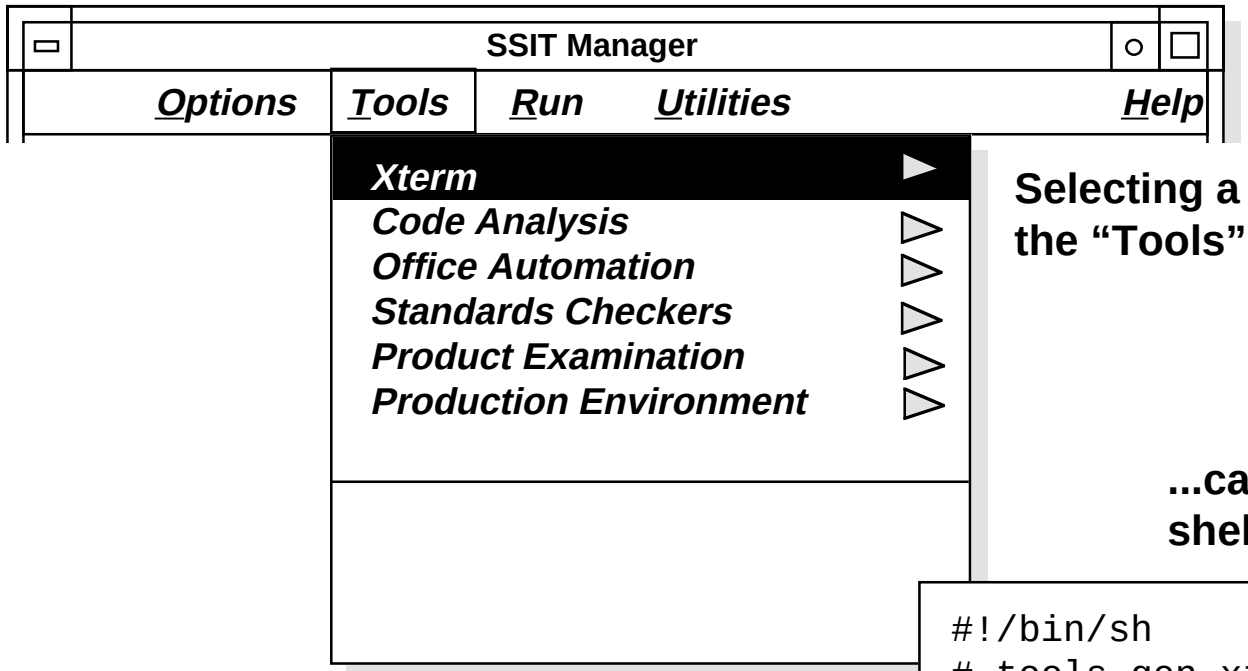
- **Processing Capacity is provided by Science Data Processing HWCI**
  - **Ir1 will have a single SGI Power Challenge, Release A will increase capacity**
- **HWCI provides servers and workstations for operations and control**
  - **At Release A, servers are configured to support Planning & Scheduling software, CM and DBMS loads. Workstations are configured to support applications interfaces, such as CM**
  - **At Ir1, a single Sun workstation will support SSI&T management, scheduling COTS and processing DBMS**

SSIT Manager - Operator View (Ir1 Mockup)



Notes: The checklist and menu contents are configurable at DAAC
CM Tool view set prior to SSIT manager invocation

Tools Menu (Ir1 Mockup)



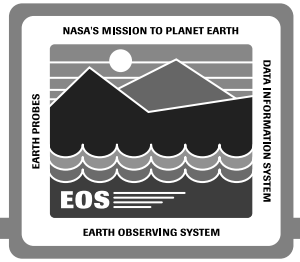
Selecting a command in the "Tools" menu...

...causes an associated shell script to be executed

```
#!/bin/sh
# tools-gen-xterm.sh
xterm -font 7x13bold -fg white \
    -bg DeepPurple -cr HotPink &
```

The same command can be executed from the command line by invoking the shell script directly

Contents of Tools Menu (Ir1)



Xterm

Office Automation

- **SoftWindows (WABI in Rel.A)**
- **GhostView**
- **NCSA Mosaic**
- **Adobe Acrobat**

Product Examination

- **IDL**
- **EOSView**
- **File Comparison Tools**
  - **HDF file comparison utility**
  - **Binary file comparison**

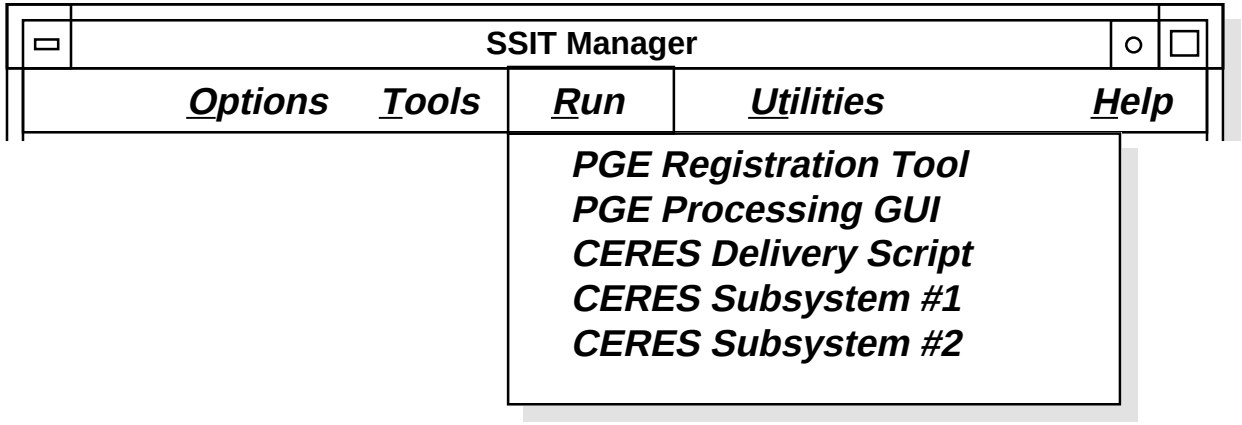
Code Analysis

- **SPARCworks**
- **CASEVision**

Standards Checkers

- **FORCheck (F77, F90 coming)**
- **Prohibited function checker**
- **Process control file checker**

Run Menu



- **Entire menu is operator-configurable**